Format No: CP/TF/01

TEST REPORT OF PHYSICAL PROPERTIES OF CEMENT - 53 Grade

Lab ID	:	**CP-2019-07-17-49** **Date: 16-05-2019**
Customer	:	Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.
Address	:	Kodigehalli Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads of BGS Layout in Ward No 07 Byatarayanapura.
Agency	:	Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560 010.
Customer's Reference	:	BBMP/EE/BTP/WO/98/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	13-05-2019
Sample Type	:	Birla Super 53grade
Reference to BIS codes	:	IS 12269 : 2013, 53 Grade Ordinary Portland cement Specification , IS 4031 (Part 1,2 3,4,5, 6,11):1988 IS 4031 Part 1 DETERMINATION OF FINENESS BY DRY SIEVING, Clause 4.4 IS 4031 Part 2, Determination of Fineness by Blaine Air Permeability Method, Clause 5 IS 4031 Part 3, Determination of Soundness, Clause 5,Clause 6 IS 4031 Part 4, Determination of Consistency of Standard Cement Paste, Clause 5 IS 4031 Part 5, Determination of Initial & Final Setting Time, Clause 5 IS 4031 Part 11,DETERMINATION OF DENSITY , Clause 6
Date of test	:	14-05-2019
Environmental Conditions during test	:	Temperature: 26°C Humidity: 72%

Sl.No.	Physical properties	Results	Requirement as per IS 12269: 2013
1	Fineness by dry sieving (%)	2.86	_
2	Finess by Air permeablity method (m^2/kg,Min)	298.7	225m^2/kg, Min
3	Density (gm/cc)	3.12	_
4	Standard Consistency (%)	28.5%	Not specified
5	Initial Setting time	160 minutes	Not less than 30 minutes
6	Final Setting time	265 minutes	Not more than 600 minutes
7	Soundness (Le Chatelier's Method)	1.5mm	Not more than 10 mm

Note:

The results pertain to the samples received and tested.

All information furnished by Customer/Representative

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FOR CIVIL Pro.

R KARTHIK RECHAN
Authorized Signatory
Quality Manager

AE(WZ)

Assistant Executive Engineer
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TEST REPORT OF PHYSICAL PROPERTIES OF CEMENT - 53 Grade

Lab ID	:	**CP-2019-07-17-49**	**Date: 11-06-2019**
Customer	:	Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.	
Address	:	Kodigehalli Sub Division, BBMP, Bangalore.	
Project Name	:	Improvements to Roads of BGS Layout in Ward No 07 Byatarayanapura.	
Agency	:	Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560 010.	
Customer's Reference	:	BBMP/EE/BTP/WO/98/2017-18	
Source of Sample	:	Sample supplied by Agency	
Sample Condition	:	Satisfactory	
Date of Receipt	:	13-05-2019	
Sample Type	:	Birla Super 53grade	
Reference to BIS codes	:	IS 12269 : 2013, 53 Grade Ordinary Portland cement Specification , IS 4031 Part 4, Determination of Consistency of Standard Cement Paste, Clause 5 IS 4031 Part 6, Determination of Compressive Strength, Clause 6	
Date of test	:	14-05-2019	
Environmental Conditions during test	:	Temperature:	26˚C
		Humidity:	72%

Compressive Strength

Sl.No.	Physical properties	Results	Requirement as per IS 12269: 2013
1	3 Days	28.5N/mm^2	Not less than 27 N/mm^2
2	7 Days	39.0N/mm^2	Not less than 37 N/mm^2
3	28 Days	58.5N/mm^2	Not less than 53 N/mm^2

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TEST REPORT ON COARSE AGGREGATES

Lab ID	:	**CP-2019-07-17-49** **Date: 16-05-2019**
Customer	:	Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.
Address	:	Kodigehalli Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads of BGS Layout in Ward No 07 Byatarayanapura.
Agency	:	Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560 010.
Customer's Reference	:	BBMP/EE/BTP/WO/98/2017-18
Source of Sample	:	Sample supplied by Agency
Sample condition	:	Satisfactory
Date of Receipt	:	13-05-2019
Sample Type	:	40mm down size coarse aggregate
Reference to BIS codes	:	IS: 383:2016 (Specification for Coarse and fine Aggregates) IS: 2386 :1963(Part - 1,3,4) RA2011 IS 2386 Part 1: Particle Size and Shape IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption IS 2386 Part 4: Mechanical Properties
Date of test	:	13-05-2019

SIEVE ANALYSIS (PARTICLE SIZE DISTRIBUTION) OF 40MM DOWN COARSE AGGREGATE:

Total weight taken : 15000 grams

Sample No.	Sieve No.	Weight Retained in gms	Cumulative Weight Retained in gms	% Cumulative Weight Retained	% Passing	Required as per IS 383:2016
1	80 mm	0	0	0.0	100	100
2	40 mm	246	246	1.6	98.4	90-100
3	20 mm	7875	8121	54.1	45.9	30-70
4	10 mm	3899	12020	80.1	19.9	10-35
5	4.75 mm	2587	14607	97.4	2.6	0-5
6	Pan	393	15000	100.0	0	---

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TEST REPORT ON COARSE AGGREGATES

Lab ID : **CP-2019-07-17-49** **Date: 16-05-2019**

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS:383-2016
1	Flakiness Index(%)	12.4	Combined Flakiness & Elongation Index Shall not Exceed 40% for Uncrushed & Crushed Aggregate
2	Elongation Index(%)	11.6	
3	Specific Gravity	2.64	_
4	Bulk Density(Loose) (Kg/l)	1.36	_
5	Bulk Density(Compacted) (Kg/l)	1.44	_
6	Water Absorption(%)	0.22	_

Note:
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R KARTHIK RECHAN
Authorized Signatory
Quality Manager

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TEST REPORT ON COARSE AGGREGATES

Lab ID	:	**CP-2019-07-17-49** **Date: 15-05-2019**
Customer	:	Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.
Address	:	Kodigehalli Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads of BGS Layout in Ward No 07 Byatarayanapura.
Agency	:	Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560 010.
Customer Reference	:	BBMP/EE/BTP/WO/98/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	13-05-2019
Sample Type/ Size	:	20mm down size coarse aggregate
Reference to BIS codes	:	IS: 383:2016 (Specification for Coarse and fine Aggregates) IS: 2386 :1963(Part - 1,3,4) RA2011 IS 2386 Part 1: Particle Size and Shape IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption IS 2386 Part 4: Mechanical Properties
Date of test	:	13-05-2019

SIEVE ANALYSIS (PARTICLE SIZE DISTRIBUTION) OF 20MM DOWN COARSE AGGREGATE:

Total weight taken : 5000 grams

Sample No.	Sieve No.	Weight Retained in gms	Cumulative Weight Retained in gms	% Cumulative Weight Retained	% Passing	Required as per IS 383:2016
1	40 mm	0	0	0	100	100
2	20 mm	296	296	5.9	94.1	90-100
3	10 mm	2643	2939	58.8	41.2	25-55
4	4.75 mm	1812	4751	95.0	5.0	0-10
5	Pan	249	5000	100	0	_

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TEST REPORT ON COARSE AGGREGATES

Lab ID : **CP-2019-07-17-49** **Date: 15-05-2019**

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS:383-2016
1	Flakiness Index(%)	8.8	Combined Flakiness & Elongation Index Shall not Exceed 40% for Uncrushed & Crushed Aggregate
2	Elongation Index(%)	11.2	
3	Specific Gravity	2.62	_
4	Bulk Density(Loose) (Kg/l)	1.41	_
5	Bulk Density(Compacted) (Kg/l)	1.47	_
6	Water Absorption(%)	0.36	_
7	Aggregate crushing Value(%)	24.7	Max 30% for Aggregates to be used in concrete for wearing Surface, In case Aggregate Crushing Value Exceeds 30% then the test for ten percent fines should be conducted for Aggregates to be used in concrete other than for wearing Surface.
8	Aggregate Impact Value(%)	25.3	30% for Aggregates to be used in concrete for wearing Surface, 45% for Aggregates to be used in concrete other than for wearing Surface.

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Bangalore - 560 092

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TEST REPORT OF FINE AGGREGATE

Lab ID : **CP-2019-07-17-49** **Date: 15-05-2019**

Customer : Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.

Address : Kodigehalli Sub Division, BBMP, Bangalore.

Project Name : Improvements to Roads of BGS Layout in Ward No 07 Byatarayanapura.

Agency : Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560 010.

Customer's Reference : BBMP/EE/BTP/WO/98/2017-18

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 13-05-2019

Sample Type : Fine Aggregate

Reference to BIS codes : IS 383 : 2016 (Specification for Coarse and fine Aggregates)
IS: 2386 :1963(Part - 1, 3) RA2012
IS 2386 Part 1: Particle Size and Shape
IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption

Date of test : 13-05-2019

Total weight taken : 1000 grams

Sl.no	Sieve Size	Weight Retained (gms)	Cumulative Weight Retained (gms)	% Cumulative Weight Retained	% Passing	Requirement as per IS 383:2016			
						Grading Zone I	Grading Zone II	Grading Zone III	Grading Zone IV
1	10 mm	0	0	0.0	100.0	100	100	100	100
2	4.75 mm	29	29	2.9	97.1	90-100	90-100	90-100	95-100
3	2.36 mm	54	83	8.3	91.7	60-95	75-100	85-100	95-100
4	1.18 mm	239	322	32.2	67.8	30-70	55-90	75-100	90-100
5	600 micron	205	527	52.7	47.3	15-34	35-59	60-79	80-100
6	300 micron	204	731	73.1	26.9	5-20	8-30	12-40	15-50
7	150 micron	189	920	92.0	8.0	0-10	0-10	0-10	0-15
8	Pan	80	1000	100.0	0.0	---	---	---	---

Result :The tested Sample Conforms to Grading Zone II

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TEST REPORT OF FINE AGGREGATE

Lab ID : **CP-2019-07-17-49** **Date: 15-05-2019**

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS 383:2016
1	Water Absorption(%)	1.7	–
2	Specific Gravity	2.59	–
3	Material finer than 75 micron(%)	6.7	Uncrushed fine Aggregate Max 3%, Crushed Fine aggregate Max 15%, Mixed Fine aggregate Max 12%, Manufactured Fine aggregate Max 10%

Note:
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TEST RESULTS OF STEEL

Lab ID : **CP-2019-07-17-49** **Date: 18-05-2019**

Customer : Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.

Address : Kodigehalli Sub Division, BBMP, Bangalore.

Project Name : Improvements to Roads of BGS Layout in Ward No 07 Byatarayanapura.

Agency : Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560 010.

Customer's Reference : BBMP/EE/BTP/WO/98/2017-18

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 17-05-2019

Sample Type : Sunvik

Reference to BIS codes : IS 1786-2008, IS:1608-2005(RA 2011), IS 1599-2012.

Date of test: : 17-05-2019

Sl.No	Identification of sample	Grade of the sample	Diameter of the steel bar	Weight of the sample	Yield stress	Tensile strength	Elongation	Bend test	Rebend test
			(mm)	(kg/m)	(N/mm2)	(N/mm2)	(%)		
1	Sunvik	Fe500	8	0.391	512	652	20.0%	Satisfactory	Satisfactory
2	Sunvik	Fe500	10	0.616	528	672	20.0%	Satisfactory	Satisfactory
3	Sunvik	Fe500	12	0.888	544	668	20.0%	Satisfactory	Satisfactory

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TEST REPORT OF PRECAST COVER SLAB

Lab ID : **CP-2019-07-17-49** **Date: 24-05-2019**

Customer : Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.

Address : Kodigehalli Sub Division, BBMP, Bangalore.

Project Name : Improvements to Roads of BGS Layout in Ward No 07 Byatarayanapura.

Agency : Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560 010.

Customer's Reference : BBMP/EE/BTP/WO/98/2017-18

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 20-05-2019

Sample Type /Size : Precast Cover Slab

Reference to BIS codes : IS: 516 - 1959 Methods of Tests for Strength of Concrete

Date of test : 20/05/2019

Sl. No.	Identification Mark	Diameter of the core	Height of the core	Weight of the core	Area	Failure Load	Core Compressive strength	Corrected Cylinder Compressive strength	Equivalent Cube Compressive strength
		(mm)	(mm)	(kg)	(Sq.mm)	(KN)	(N/mm^2)	(N/mm^2)	(N/mm^2)
1	Cover Slab-1	75.51	100.48	1.116	4477	80.8	18.0	16.8	21.0
2	Cover Slab-2	75.49	100.52	1.122	4475	82.4	18.4	17.1	21.4
3	Cover Slab-3	75.50	100.51	1.118	4476	81.5	18.2	16.9	21.2

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Format No: CP/TF/01

TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : **CP-2019-07-17-49** **Date: 01/06/2019**

Customer : Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.

Address : Kodigehalli Sub Division, BBMP, Bangalore.

Project Name : Improvements to Roads of BGS Layout in Ward No 07 Byatarayanapura.

Agency : Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560 010.

Customer's Reference : BBMP/EE/BTP/WO/98/2017-18

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 27-05-2019

Customer ID : RCC

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M20 / 7 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

Date of test : 01/06/2019

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	RCC	M20	25/05/2019	01/06/2019	150.24 X 150.99 X 150.72	22684	**8.381**	412.2	18.2	18.3
2	RCC	M20	25/05/2019	01/06/2019	151.60 X 149.28 X 151.07	22631	**8.968**	411.4	18.2	
3	RCC	M20	25/05/2019	01/06/2019	149.42 X 151.05 X 151.55	22571	**8.493**	417.6	18.5	

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Assistant Executive Engineer
Kodigehalli Sub Division
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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : **CP-2019-07-17-49** **Date: 22/06/2019**

Customer : Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.

Address : Kodigehalli Sub Division, BBMP, Bangalore.

Project Name : Improvements to Roads of BGS Layout in Ward No 07 Byatarayanapura.

Agency : Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560 010.

Customer's Reference : BBMP/EE/BTP/WO/98/2017-18

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 27-05-2019

Customer ID : RCC

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M20 / 28 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

Date of test : 22/06/2019

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	RCC	M20	25/05/2019	22/06/2019	149.26 X 150.91 X 149.47	22524	**8.679**	540.0	24.0	23.4
2	RCC	M20	25/05/2019	22/06/2019	150.43 X 152.00 X 150.22	22865	**8.369**	511.1	22.4	
3	RCC	M20	25/05/2019	22/06/2019	150.33 X 149.39 X 151.84	22457	**8.290**	538.7	24.0	

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AE(W91)

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : **CP-2019-07-17-49** **Date: 01/06/2019**

Customer : Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.

Address : Kodigehalli Sub Division, BBMP, Bangalore.

Project Name : Improvements to Roads of BGS Layout in Ward No 07 Byatarayanapura.

Agency : Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560 010.

Customer's Reference : BBMP/EE/BTP/WO/98/2017-18

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 27-05-2019

Customer ID : RCC

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M20 / 7 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

Date of test : 01/06/2019

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	RCC	M20	25/05/2019	01/06/2019	151.29 X 150.59 X 150.31	22784	**8.381**	430.3	18.9	18.8
2	RCC	M20	25/05/2019	01/06/2019	151.39 X 151.63 X 150.94	22955	**8.968**	430.7	18.8	
3	RCC	M20	25/05/2019	01/06/2019	149.33 X 151.51 X 149.39	22625	**8.493**	421.9	18.6	

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AE(HQ)

Assistant Executive Engineer
Kodigehalli Sub Division
Bruhat Bangalore Mahanagara Palike
Bangalore - 560 092

Page 1/1
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R KARTHIK RECHAN
Authorized Signatory
Quality Manager

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Format No: CP/TF/01

TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : **CP-2019-07-17-49** **Date: 22/06/2019**

Customer : Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.

Address : Kodigehalli Sub Division, BBMP, Bangalore.

Project Name : Improvements to Roads of BGS Layout in Ward No 07 Byatarayanapura.

Agency : Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560 010.

Customer's Reference : BBMP/EE/BTP/WO/98/2017-18

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 27-05-2019

Customer ID : RCC

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M20 / 28 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

Date of test : 22/06/2019

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	RCC	M20	25/05/2019	22/06/2019	150.67 X 151.28 X 151.75	22793	**8.679**	525.3	23.0	22.9
2	RCC	M20	25/05/2019	22/06/2019	151.06 X 150.21 X 151.66	22691	**8.369**	505.3	22.3	
3	RCC	M20	25/05/2019	22/06/2019	150.84 X 151.89 X 149.98	22911	**8.290**	535.3	23.4	

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AE (WZ)

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : **CP-2019-07-17-49** **Date: 01/06/2019**

Customer : Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.

Address : Kodigehalli Sub Division, BBMP, Bangalore.

Project Name : Improvements to Roads of BGS Layout in Ward No 07 Byatarayanapura.

Agency : Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560 010.

Customer's Reference : BBMP/EE/BTP/WO/98/2017-18

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 27-05-2019

Customer ID : RCC

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M20 / 7 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

Date of test : 01/06/2019

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	RCC	M20	25/05/2019	01/06/2019	151.96 X 150.27 X 150.36	22835	**8.381**	429.1	18.8	18.3
2	RCC	M20	25/05/2019	01/06/2019	150.32 X 151.70 X 151.91	22803	**8.968**	412.5	18.1	
3	RCC	M20	25/05/2019	01/06/2019	150.03 X 151.81 X 149.02	22776	**8.493**	413.5	18.2	

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : **CP-2019-07-17-49** **Date: 22/06/2019**

Customer : Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.

Address : Kodigehalli Sub Division, BBMP, Bangalore.

Project Name : Improvements to Roads of BGS Layout in Ward No 07 Byatarayanapura.

Agency : Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560 010.

Customer's Reference : BBMP/EE/BTP/WO/98/2017-18

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 27-05-2019

Customer ID : RCC

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M20 / 28 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

Date of test : 22/06/2019

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	RCC	M20	25/05/2019	22/06/2019	149.18 X 151.40 X 149.80	22586	**8.679**	526.7	23.3	23.0
2	RCC	M20	25/05/2019	22/06/2019	149.66 X 149.86 X 151.63	22428	**8.369**	497.6	22.2	
3	RCC	M20	25/05/2019	22/06/2019	150.53 X 150.05 X 149.70	22587	**8.290**	529.8	23.5	

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AE(HQ)

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Bangalore - 560 092

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Quality Manager

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : **CP-2019-07-17-49** **Date: 01/06/2019**

Customer : Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.

Address : Kodigehalli Sub Division, BBMP, Bangalore.

Project Name : Improvements to Roads of BGS Layout in Ward No 07 Byatarayanapura.

Agency : Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560 010.

Customer's Reference : BBMP/EE/BTP/WO/98/2017-18

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 27-05-2019

Customer ID : RCC

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M20 / 7 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

Date of test : 01/06/2019

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	RCC	M20	25/05/2019	01/06/2019	149.58 X 149.57 X 151.28	22374	**8.381**	403.1	18.0	18.3
2	RCC	M20	25/05/2019	01/06/2019	151.06 X 151.33 X 149.23	22859	**8.968**	430.8	18.8	
3	RCC	M20	25/05/2019	01/06/2019	151.69 X 151.87 X 151.46	23038	**8.493**	416.7	18.1	

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : **CP-2019-07-17-49** **Date: 22/06/2019**

Customer : Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.

Address : Kodigehalli Sub Division, BBMP, Bangalore.

Project Name : Improvements to Roads of BGS Layout in Ward No 07 Byatarayanapura.

Agency : Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560 010.

Customer's Reference : BBMP/EE/BTP/WO/98/2017-18

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 27-05-2019

Customer ID : RCC

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M20 / 28 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

Date of test : 22/06/2019

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	RCC	M20	25/05/2019	22/06/2019	151.33 X 149.61 X 151.33	22641	**8.679**	524.0	23.1	23.2
2	RCC	M20	25/05/2019	22/06/2019	149.79 X 150.79 X 151.18	22588	**8.369**	518.9	23.0	
3	RCC	M20	25/05/2019	22/06/2019	150.24 X 149.01 X 149.55	22387	**8.290**	528.2	23.6	

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TEST RESULTS OF GRADATION FOR WMM

Lab ID : **CP-RW-2019-07-17-49** **Date: 30-05-2019**

Customer : Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.

Address : Kodigehalli Sub Division, BBMP, Bangalore.

Project Name : Improvements to Roads of BGS Layout in Ward No 07 Byatarayanapura.

Agency : Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560 010.

Customer Reference : BBMP/EE/BTP/WO/98/2017-18

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 28-05-2019

Type of Mix : WMM (Wet Mix Macadam)

Date of test : 28-05-2019

Oven Dry Weight : 11000 Grams

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	% Cumulative Weight Retained	% Passing	Spec.I.Vide Table 400.13 MORTH Specification
53	0	0	0.0	100.0	100
45	315	315	2.9	97.1	95-100
22.4	2258	2573	23.4	76.6	60-80
11.2	2179	4752	43.2	56.8	40-60
4.75	2253	7005	63.7	36.3	25-40
2.36	1622	8627	78.4	21.6	15-30
0.6	623	9250	84.1	15.9	8-22
0.075	1337	10587	96.2	3.8	0-5

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R KARTHIK RECHAN
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Quality Manager

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TEST REPORT OF AGGEGRATE IMPACT VALUE
IS: 2386 Part IV

Lab ID	:	**CP-RW-2019-07-17-49**	**Date: 30-05-2019**
Customer	:	Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.	
Address	:	Kodigehalli Sub Division, BBMP, Bangalore.	
Project Name	:	Improvements to Roads of BGS Layout in Ward No 07 Byatarayanapura.	
Agency	:	Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560 010.	
Customer Reference	:	BBMP/EE/BTP/WO/98/2017-18	
Source of Sample	:	Sample supplied by Agency	
Sample Condition	:	Satisfactory	
Date of Receipt	:	28-05-2019	
Type of Mix	:	Coarse Aggregate for WMM (Wet Mix Macadam)	
Date of test	:	28-05-2019	

Sl.No	Particulars of observations	Index	TEST 1	TEST 2
1	Total weight of the surface dry sample sample (passing 12.5 mm and retained on 10mm sieve)	A	300.2	300.2
2	Weight of fraction passing 2.36mm sieve After giving 15 blows	B	73.9	74.0
3	weight of fraction retained 2.36mm sieve After giving 15 blows	C	225.9	225.8
4	Total weight of (B+C) is less than the initial weight (Weight A) by more than one gram the result shall be discarded and a fresh test made.	A-(B+C)	0.4	0.4
5	Aggregate impact value	(B/A)*100	24.6	24.7
6	Aggregate impact value (Mean of two tests)	Pecentage	24.6	

Note:-
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DETERMINATION OF FLAKINESS INDEX AND ELONGATION INDEX OF COARSE AGGREGATE(IS 2386 (Part 1) 1963 (RA 2007)

Lab ID	:	**CP-RW-2019-07-16-49**	**Date: 30-05-2019**
Customer	:	Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.	
Address	:	Kodigehalli Sub Division, BBMP, Bangalore.	
Project Name	:	Improvements to Roads of BGS Layout in Ward No 07 Byatarayanapura.	
Agency	:	Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560 010.	
Customer Reference	:	BBMP/EE/BTP/WO/98/2017-18	
Source of Sample	:	Sample supplied by Agency	
Sample Condition	:	Satisfactory	
Date of Receipt	:	28-05-2019	
Type of Mix	:	Coarse Aggregate for WMM (Wet Mix Macadam)	
Date of test	:	28-05-2019	

Result:

Index	**Percentage of Flakiness and Elongation Index**	**Secified limits as per MORTH specification table 400-12**
Flakiness Index	12.8%	Combined Flakiness & Elongation Index for WMM is Maximum 35%
Elongation Index	12.6%	
Combined Flakiness and Elongation Index for WMM	25.4%	

Note:-
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AE(WT)

Sig.....
Date.....

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TEST RESULTS OF GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2007)

Lab ID : **CP-RW-2019-07-17-49** **Date: 13-06-2019**

Customer : Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.

Address : Kodigehalli Sub Division, BBMP, Bangalore.

Project Name : Improvements to Roads of BGS Layout in Ward No 07 Byatarayanapura.

Agency : Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560 010.

Customer Reference : BBMP/EE/BTP/WO/98/2017-18

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 11-06-2019

Type of Mix : BC-Plant (Bituminous Concrete)

Date of test : 11-06-2019

Oven Dry Weight : 5000 Grams

IS Sieve Size (mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Secified limits as per MORTH specification table 500-17(grading-2)
19	0	0	0.0	100.0	100
13.2	88	88	1.8	98.2	90-100
9.5	704	792	15.8	84.2	70-88
4.75	895	1687	33.7	66.3	53-71
2.36	588	2275	45.5	54.5	42-58
1.18	491	2766	55.3	44.7	34-48
0.6	503	3269	65.4	34.6	26-38
0.3	527	3796	75.9	24.1	18-28
0.15	458	4254	85.1	14.9	12-20
0.075	351	4605	92.1	7.9	4-10
PAN	395	5000	100	0.0	0

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Assistant Executive Engineer
Kodigehalli Sub Division
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TEST REPORT OF AGGEGRATE STRIPPING VALUE OF ROAD AGGRGATE (IS:6241)

Lab ID	:	**CP-RW-2019-07-17-49** **Date: 15-06-2019**
Customer	:	Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.
Address	:	Kodigehalli Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads of BGS Layout in Ward No 07 Byatarayanapura.
Agency	:	Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560 010.
Customer Reference	:	BBMP/EE/BTP/WO/98/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	11-06-2019
Type of Mix	:	BC(Bitumenous Concrete)
Date of test	:	11-06-2019

Type of Binder	:	60/70
% of Binder Used	:	5.0%
Weight of Aggregate	:	200.0 gm
Weight of Binder	:	10.0 gm
Temperature of water bath	:	40°C

No of test	Retained Stripping Percentage	Stripping Percentage	Average Retained Stripping Percentage	Secified limits as per MORTH specification table 500-8
1	98.5	1.5	98.3	Minimum Retained Coating 95%
2	98.5	1.5		
3	98.0	2.0		

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AE (WS)

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Bangalore - 560 092

CIVIL Pro Sig..... Date..... BANGALORE

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PHYSICAL REQUIREMENTS FOR COARSE AGGREGATE FOR BITUMINOUS CONCRETE

Date: 15-06-2019

Lab ID : **CP-RW-2019-07-17-49**

Customer : Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.

Address : Kodigehalli Sub Division, BBMP, Bangalore.

Project Name : Improvements to Roads of BGS Layout in Ward No 07 Byatarayanapura.

Agency : Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560 010.

Customer Reference : BBMP/EE/BTP/WO/98/2017-18

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 11-06-2019

Type of Mix : BC (Bituminous Concrete)

Date of test : 11-06-2019

Table 500-16 : Physical Requirements fo Coarse Aggregate for Bituminous Concrete

Property	Test	Result	Specification	Method of Test
Partical Shape	Flakiness Index	12.4	Combined Flakiness & Elongation Index for BC is Maximum 35%	IS:2386 Part I
	Elongation Index	11.7		
Strength	Aggregate Impact Value	22.2	Maximum 24%	IS:2386 Part IV
Specific gravity	Specific gravity	2.67	Maximum 2.7	IS:2386 Part III
Water Absorption	Water Absorption	0.23	Maximum 2%	IS:2386 Part III

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AE(HQ)

Assistant Executive Engineer
Kodigehalli Sub Division
Bruhat Bangalore Mahanagara Palike
Bangalore-560 092

CIVIL Pro Sig..... Date..... BANGALORE

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TESTS RESULTS ON STABILITY OF MIX

Lab ID : **CP-RW-2019-07-17-49** **Date: 15-06-2019**

Customer : Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.

Address : Kodigehalli Sub Division, BBMP, Bangalore.

Project Name : Improvements to Roads of BGS Layout in Ward No 07 Byatarayanapura.

Agency : Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560 010.

Customer Reference : BBMP/EE/BTP/WO/98/2017-18

Source of Sample : Hot Mix Plant, Bangalore

Sample Condition : Satisfactory

Date of Receipt : 11-06-2019

Type of Mix : BC (Bituminous Concrete)

Date of test : 11-06-2019

The results of the tests conducted on the Bituminous Concrete mix sample are as follow

Sl.No	Particulars of observations	TEST 1	TEST 2	Secified limits as per MORTH specification table 500-11
1	Marshal Stability at 60°C, KN	11.14	11.13	10KN(min)
2	Marshal flow at 60°C, mm	3.52	3.51	2-4
3	Percent air Voids	4.82	4.83	3-5
4	Percent Voids in mineral Aggregate(VMA %)	14.28	14.26	13-15
5	Percent Voids filled with Bitumen(VFB %)	71.87	71.63	65-75
6	Density, g/cc	2.25	2.26	–

Note:-

The results pertain to the samples received and tested.
All information Furnished by Customer/ Representative
Any correction in the report will make this report invalid.
This report without prior written approval should not be reproduced or published in full or part.
Samples will be disposed after 90 days from the date of issue of test certificate

FOR CIVIL Pro.

R KARTHIK RECHAN
Authorized Signatory
Quality Manager

AEE(W4)

Assistant Executive Engineer
Kodigehalli Sub Division
Bruhat Bangalore Mahanagara Palike

CIVIL PRO BANGALORE Sig.....Date.....

End of Report

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TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2011)

Lab ID : **CP-RW-2019-07-17-49** **Date: 17-06-2019**

Customer : Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.

Address : Kodigehalli Sub Division, BBMP, Bangalore.

Project Name : Improvements to Roads of BGS Layout in Ward No 07 Byatarayanapura.

Agency : Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560 010.

Customer Reference : BBMP/EE/BTP/WO/98/2017-18

Source of Sample : Sample supplied by Agency

Date of Receipt : 14-06-2019

Type of Mix : BC (Bituminous Concrete)

Date of test : 14-06-2019

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	A	500	500
2	Weight of the sample After extraction	B	469	468
3	Bitumen percentage	$\frac{A-B}{A} \times 100$	6.20	6.40
4	Average percentage	%	6.3	

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R KARTHIK RECHAN
Authorized Signatory
Quality Manager

CIVIL PRO Sig..... Date..... BANGALORE

Lab ID : **CP-RW-2019-07-17-49** **Date: 17-06-2019**

AFTER EXTRACTION - Trail-1

Total Weight of the Sample(gm) : 469

IS Sieve Size (mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	4	4	0.9	99.1	90-100
9.5	62	66	14.1	85.9	70-88
4.75	112	178	38.0	62.0	53-71
2.36	88	266	56.7	43.3	42-58
1.18	29	295	62.9	37.1	34-48
0.6	11	306	65.2	34.8	26-38
0.3	46	352	75.1	24.9	18-28
0.15	45	397	84.6	15.4	12-20
0.075	52	449	95.7	4.3	4-10

AFTER EXTRACTION - Trail-2

Total Weight of the Sample(gm) : 468

IS Sieve Size (mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	4	4	0.9	99.1	90-100
9.5	62	66	14.1	85.9	70-88
4.75	112	178	38.0	62.0	53-71
2.36	88	266	56.8	43.2	42-58
1.18	29	295	63.0	37.0	34-48
0.6	11	306	65.4	34.6	26-38
0.3	46	352	75.2	24.8	18-28
0.15	45	397	84.8	15.2	12-20
0.075	50	447	95.5	4.5	4-10

Note:-

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FOR CIVIL Pro.

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Format No: CP/TF/01

TEST REPORT ON BITUMEN

Lab ID	:	**CP-RW-2019-07-17-49** **Date: 08-06-2019**
Customer	:	Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.
Address	:	Kodigehalli Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads of BGS Layout in Ward No 07 Byatarayanapura.
Agency	:	Executive Engineer, Karnataka Rural Infrastructure Development Ltd, #280, 59th Cross Road, 17th 'C' Main Road, 3rd 'Y' Block, Rajajinagara, Bangalore-560 010.
Customer's Reference	:	BBMP/EE/BTP/WO/98/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	07-06-2019
Sample Type	:	Bitumen
Reference to BIS codes	:	IS: 1201-1220(1978) (Reaffirmed-2004)
Date of test	:	07-06-2019

Test Results

Sl.no	Name of Test	Result	Requirements as per IS:73-2013
1	Penetration at 25°C , in 1/10th mm	**64**	60 to 70
2	Softening Point, °C	**51.1**	Min. 40°C
3	Ductility, cm	**98**	Min. 75cm
4	Flash point, °C	**246**	Min. 220°C
	Fire point, °C	**271**	

Note:-
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AE(WS)

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FOR CIVIL Pro.

R KARTHIK RECHAN
Authorized Signatory
Quality Manager

CIVIL PRO BANGALORE Sig..... Date.....

****End of Report****

DETERMINATION OF RATE OF SPREAD TACK COAT

Lab ID	:	**CP-RW-2019-07-17-49**	**Date: 15-06-2019**
Customer	:	Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.	
Address	:	Kodigehalli Sub Division, BBMP, Bangalore.	
Project Name	:	Improvements to Roads of BGS Layout in Ward No 07 Byatarayanapura.	
Agency	:	Executive Engineer,Karnataka Rural Infrastructure Development Ltd, #280,59th Cross Road,17th C Main Road,3rd Y Block,Rajajinagara,Bangalore-560010.	
Customer Reference	:	BBMP/EE/BTP/WO/98/2017-18	
Sample Condition	:	Satisfactory	
Date of Receipt	:	14-06-2019	
Type of Mix	:	Tack coat	
Date of test	:	14-06-2019	

Sl.No	Determination	Unit	TEST 1	TEST 2
1	Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
2	Area of Plate (a)	Sq.mtr	0.09	0.09
3	Initial Wt of empty Plate (b)	Kg	0.78	0.748
4	Final weight of plate after application of tack Coat (c)	Kg	0.803	0.771
5	Weight of tack Coat (d=c-b)	Kg	0.023	0.023
6	Rate of spread of tack coat	Kg/sq.m	0.256	0.256
7	Average	Kg/sq.m	0.256	
8	Specified Limit	Kg/sq.m	0.250 Kg/sq.m	

Note:-
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FOR CIVIL Pro.
R KARTHIK RECHAN
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CIVIL PRO BANGALORE Sig..... Date.....

Page 1/1
End of Report

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